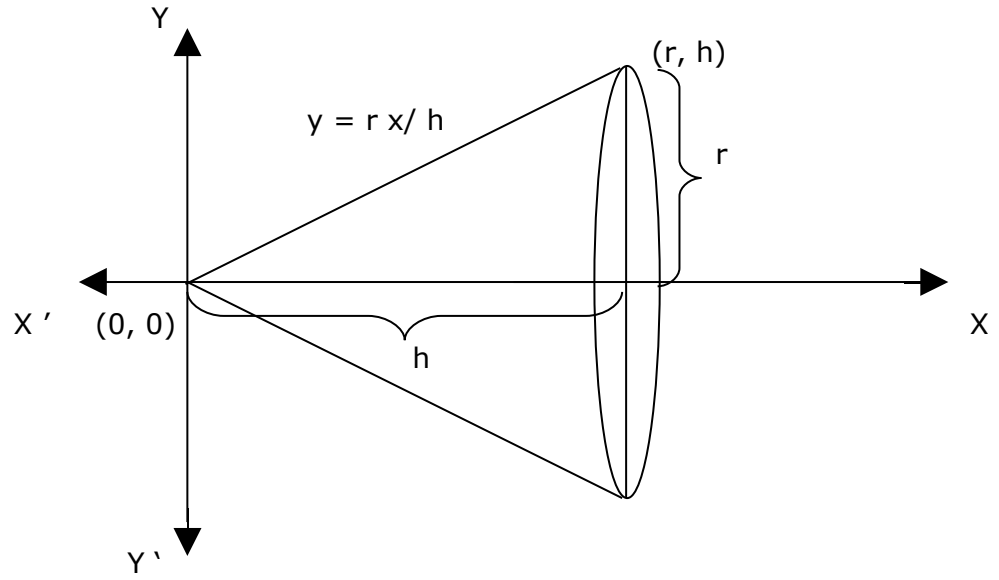
VOLUME OF CONE BY USING INTEGRATION:-



Let us consider a right circular cone of radius r and the height h. The volume of cone is obtained by the formula,

$$V = \int_a^b \pi y^2 \, dx$$

Here equation of the slant height i.e a straight line passing through origin is given by y = mx and m= dy/dx i.e m= r/h

Hence, y = r x / h.

$$V = \int_a^b \pi y^2 \, dx$$

$$V = \pi \int_0^h (rx/h)^2 \, dx$$

$$V = \pi r^2/h^2 \int_0^h x^2 \, dx$$

$$V = \pi r^2/h^2 \left(x^3 / 3 \right)_0^h$$

$$V = \pi r^2/h^2 \left(h^3 / 3 \right)$$

$$V = (1/3)\pi r^2 h \text{ cubic units.}$$